

UtahAmerican Energy, Inc.



Lila Canyon Project
P. O. Box 910
East Carbon, Utah 84501
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C/007/013 Incoming

#3867

K

June 28, 2011

Daron Haddock
Permit Supervisor
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Re: UtahAmerican Energy, Inc. Lila Canyon Mine, ACT/009-013, Response to Chapter 7
Water Monitoring Deficiencies 11-010

Dear Mr. Haddock,

Please find attached five (5) copies of the response to the deficiencies to the water monitoring submittal.

C1 and C2 forms are included along with a CD containing an electronic copy of the response.

If you have any questions please give me a call.

Sincerely,

R. Jay Marshall

R. Jay Marshall P.E.
Project Manager / Chief Engineer
Lila Canyon Mine

File in:

- ☐ Confidential
- ☐ Shelf
- ☒ Expandable

Date Folder *070511* *C/0070013*
0002

RECEIVED
JUL 05 2011
DIV. OF OIL, GAS & MINING

APPLICATION FOR PERMIT PROCESSING

Permit Change ☐New Permit ☐Renewal ☐Transfer ☐Exploration ☐Bond Release ☐

Permit Number: ACT/007/013

Title of Proposal: Chapter 7 revisions, response to deficiencies 11-010

Mine: Horse Canyon

Permittee: UtahAmerican Energy, Inc.

Description, include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation

- | | | |
|------------------------------|-----------------------------|--|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 1. Change in the size of the Permit Area? _____ acres Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease. |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 2. Is the application submitted as a result of a Division Order? DO # _____ |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 4. Does application include operations in hydrologic basins other than as currently approved? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 5. Does application result from cancellation, reduction or increase of insurance or reclamation bond? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 6. Does the application require or include public notice/publication? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 7. Does the application require or include ownership, control, right-of-entry, or compliance information? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 9. Is the application submitted as a result of a Violation? NOV # _____ |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 10. Is the application submitted as a result of other laws or regulations or policies? Explain: Permit Renewal |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 11. Does the application affect the surface landowner or change the post mining land use? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2?) |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 13. Does the application require or include collection and reporting of any baseline information? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 15. Does application require or include soil removal, storage or placement? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 16. Does the application require or include vegetation monitoring, removal or revegetation activities? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 17. Does the application require or include construction, modification, or removal of surface facilities? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 18. Does the application require or include water monitoring, sediment or drainage control measures? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 19. Does the application require or include certified designs, maps, or calculations? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 20. Does the application require or include subsidence control or monitoring? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 21. Have reclamation costs for bonding been provided for? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 22. Does application involve a perennial stream, a stream buffer zone or discharges to a stream? |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 23. Does the application affect permits issued by other agencies or permits issued to other entities? |

X Attach 5 complete copies of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Signed - Name - Position - Date _____

Subscribed and sworn to before me this ____ day of _____, 19 ____.

Notary Public _____

My Commission Expires: _____, 19 ____ }
Attest: STATE OF _____ }
COUNTY OF _____ }

) ss: _____

Received by Oil, Gas & Mining

JUL 05 2011

DIV. OF OIL, GAS & MINING

ASSIGNED TRACKING NUMBER

Permit Renewal. Revised Chapter 7 water monitoring deficiency response
11-010

Permittee: UtahAmerican Energy, Inc.

DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED

[illegible]

KEEP ALL FIGURES AT THE END OF THE CHAPTER 7 TEXT

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DRAINAGE GAS & MINING

**Horse Canyon Extension
Lila Canyon Mine**

**Chapter 7
Hydrology
11-006**

Volume 6 of 7

731.122 Surface-Water Quantity Surface water quantity and flow rates will be protected as described in Section 731.

731.200 Water Monitoring The water monitoring program has been implemented since July, 2000. Baseline data has been collected from both surface and groundwater monitoring sites. These sites established the current baseline data set that has been approved by the Division as representing the current surface and groundwater conditions.

Preceding each five year permit renewal, ground (springs) and surface waters will be sampled for baseline parameters, same as listed in Tables 7-4 and 7-5. Sampling of ground and surface waters will be conducted according to the operational monitoring plan, even if the monitoring has been temporarily suspended. It has been determined that minimal monitoring is required based on the anticipated impacts and no appropriated surface water use downstream.

731.210 Ground-Water Monitoring The ground-water monitoring plan is based on results of the Baseline Study and PHC determination. Based on results of these studies, the only ground water expected to be affected in the permit area is that which has been identified as springs or seeps and that which may be expected from perched aquifers encountered by the planned mining. Since no portals are presently discharging on or adjacent to the permit area and since current mining has not encountered water, no underground water is presently available for sampling. Therefore, selected springs are sampled under the Ground Water Monitoring Plan.

If ground water is encountered in future mining, of a quantity which requires discharge, the water will be monitored in accordance with requirements of this section and a monitoring plan will be proposed at that time.

For purposes of the water monitoring program, springs and seeps are considered ground water and will be monitored as such.

731.211 Ground-Water Monitoring Plan Based on information in the PHC determination (Appendix 7-3), and as indicated above, the only ground water resources on or adjacent to the permit area that can be monitored at this time are springs and seeps. See Appendix 7-6 for a detailed description of the water monitoring locations.

There are a total of 11 ground water monitoring sites proposed for this property (see Table 7-3). Station L-5-G is the potential mine discharge point, and will be monitored at least monthly, or as discharge occurs, in accordance with U.P.D.E.S. Permit requirements (see Table 7-4).

Stations L-7-G, L-8-G, L-9-G, L-11-G, and L-12-G are significant springs or seeps located over the area of proposed mining. These springs will be monitored on a quarterly basis for parameters listed in Table 7-5.

Station L-6-G is in the vicinity of two listed water right springs, Mont Spring and Leslie Spring. These springs are within the same small drainage, and may in fact be the same spring. Close examination of spring/seep and baseline monitoring stations show only one site in this drainage with any consistent flows - site H-18; therefore, this site was originally chosen to monitor the Mont and Leslie Springs area. However in recent years L-6-G has been dry and a new wet area upstream of L-6-G, Location L-11-G, has been added to replace site L-6-G. Sampling at L-6-G was suspended as of the First Quarter of 2003.

Monitoring site L-7-G is intended to monitor a listed site known as Cottonwood Spring. Once again, a close examination of water rights information along with spring/seep and baseline monitoring has shown only one site in this area with any consistency - site #9; therefore, this is the site chosen for monitoring of Cottonwood Spring.

L-8-G is an unnamed spring that matches Earthfax sample site 10.

L-9-G is known as Pine Spring. There are two locations that are identified as Pine Spring. These are water rights 91-2517 and 91-2539, which are part of the same water right filing. In the spring and seep inventories there has never been any flow identified in the area of 91-2517 as the site is located off of the stream channel. It is assumed that the filing for 91-2517 is a duplicate but the location is wrong. There have been numerous seep/spring notations in the local area, but the only consistent flowing site is 91-2539; this is the site that will be monitored for Pine Spring. (In a recent archeological study, the location of the site that has

been monitored as L-9-G was determined using GPS coordinates. The location for this site was determined to be different than what was plotted on the Plates 7-1, 7-1A, and 7-3. Based on this new data, the location of the spring has been updated.)

L-10-G is also an unnamed spring that matches Earthfax sample site 14. Since this site is located over 1 mile south of the permit area, it has been replaced with L-12-G which is a more appropriate site to monitor. Monitoring of site L-10-G was suspended as of the First Quarter of 2003.

L-11-G is located in the bottom of the upper reaches of Lila Canyon. This is in the same drainage as the Mont and Leslie Springs water right locations. In recent years L-6-G (H-18) has been dry. However, there has been some minimum flow observed approximately one hundred yards above L-6-G where L-11-G was established.

L-12-G is an unnamed spring which had been developed but is now abandoned.

L-13-S, L-14-S, L-15-S, and L-18-S are sites being monitored to assist in characterization of the various drainages.

L-16-G and L-17-G are seeps being monitored in Stinky Spring Canyon. These sites were not identified during baseline surveys and are believed to exist intermittently and are not always evident. These two seeps appear to be an important source of water for Bighorn sheep specifically in the early spring.

L-20-G is a seep located north of the permit boundary along a tributary to Little Park Wash. It was identified in the original spring and seep survey and will now be monitored.

It should be noted that data has been gathered on the various seeps/springs as part of the original baseline inventory for the South Lease by I.P.A. The data was gathered over the years 1993, 1994 and 1995 and was stopped. In the second quarter of 2001 water monitoring continued.

The seep/spring inventory data is shown in Appendix 7-1 and locations are shown on Plate 7-1. Proposed water monitoring sites are shown on Plate 7-4.

IPA-1, -2 and -3 are groundwater piezometers in the Little Park Wash area. These holes will be checked quarterly for water depth only. Monitoring of these sites will continue until the mining or subsidence renders them unusable.

At a minimum, total dissolved solids or specific conductance corrected to 25 degrees C, pH, total iron, total manganese and water levels will be monitored, on all points except IPA-1, -2 and -3.

731.212 Monitoring Reports During periods of active monitoring, ground water will be monitored and data will be submitted at least every three months for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the approved reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator will promptly notify the Division and immediately take the actions provided for in 145 and 731.

731.213 Waiver of Monitoring N/A - No waiver is requested.

731.214 Ground-Water Monitoring Duration Ground-water monitoring will continue through mining and reclamation until bond release.

The Division may approved modifications to the monitoring plan if, based on the monitoring data, it finds:

731.214.1 "The coal mining and reclamation operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses"; or,

731.214.2 until "Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under R645-301-731.211."

Therefore, UEI requests that the ground water monitoring plan be modified as follows:

One spring to the north of the northern edge of the permit boundary named Quaker Spring, will be monitored for two years to develop a baseline data set. It will be designated as L-20-G. Following the baseline data collection its monitoring will follow the operational monitoring schedule for the upper springs.

As baseline for the ground water conditions has been described by the monitoring to date for the Lila Canyon permit area, UEI would like to discontinue monitoring of the monitoring well water levels until mining intercepts the projected regional piezometric surface, as shown on Plate 7-1, and the springs and seeps until just before second mining takes place within the mine permit area. If mining encounters the regional piezometric surface, then water level monitoring will be resumed. Two years before second mining is anticipated to start, then monitoring of the wells and springs and seeps will resume and the data compared with the baseline.

UEI recognizes the Division's concerns for springs, L-G-16 and L-G-17, located at the top of the Mancos Shale, below the escarpment. While concerns of the use of these springs for wildlife have been suggested, UEI does not believe that the wildlife are using these waters. The TDS values have been excessive which are believed to limit or preclude the use of this water by wildlife. At the Division's request, these sampling sites will continue to be monitored, while additional evaluation of wildlife use is made.

The existing baseline data shows the current ground water conditions for the permit area. No significant groundwater impacts have been identified from current first mining activities. Continuous additional monitoring will only unnecessarily duplicate costs for data that has already been collected.

Also, it is desired that the monitoring during the first quarter not be continued. During the data collection period, there have been few first quarter periods when it was feasible to gain access to the upper elevations of the Book Cliffs and when access was available to the top during these periods, the snow cover in the canyons prevented access to the spring locations and the springs which were accessed were frozen. Therefore, it would be realistic to recognize the existing field conditions and adjust the monitoring plan accordingly.

The monitoring plan would be modified to require monitoring during the spring, summer and fall quarters.

731.215 Monitoring Equipment equipment, structures and other devices used in conjunction with monitoring the quality of ground water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed.

731.220 Surface Water Monitoring Surface water monitoring will be conducted in accordance with the plan described in this section.

Based on results of the PHC determination, baseline study and other available information, numerous small springs and seeps exist within, and adjacent to, the permit area. In addition, ephemeral drainages in the area flow in response to snow melt and precipitation events. The proposed surface water monitoring program will monitor the significant surface water sources, including drainages above and below the disturbed mine site area, and all point-source discharges (i.e. sediment pond). Seeps, springs and potential mine water discharge will be monitored in accordance with the Ground Water Monitoring Plan in the previous section.

It should be noted that field sheets in Appendix 7-2 refer to a point HC-2, while Bar Graphs and Spreadsheets refer to a station B-1. It has been determined that these are the same point. The site is designated B-1 on Plate 7-1, with a red HC-2 in parenthesis. The electronic data inventory (EDI) also shows both B-1 and HC-2 designations for this site.

Another HC-2 site is listed in the seep/spring inventories in Appendix 7-6 and in the baseline data in Appendix 7-1. This station is also occasionally referred to as H-2 in the seep/spring inventories (Appendix 7-6). It has been determined that the H-2 and HC-2 sites referred to in these two appendices are the same station. The station location is shown on Plate 7-1, where it is designated H-2 with a green (HC-2) in parentheses.

There is one other station with confusing designations in the data from Appendix 7-2 and 7-6 - station HCSW-1. This station has 3 different designations in the data - HCSW-1, HSW-1, and HC-1. The point is shown as HC-1 on Plates 7-1 and 7-4; however, a note has been added to Plate 7-1 to show the station is also called (HCSW-1), to eliminate confusion. It should also be noted that there is a seep/spring site designated as H-1 on Plate 7-1. This is not to be confused with any of the above listed HC, HSW or HCSW sites.

These are the only known duplication or wrong designation of sample site numbers. It appears that different samplers or companies conducting seep/spring inventories occasionally used different designations for the same sites - the main problem being the use of H-# or HC-# for the same location, in some instances. Every effort has been made to refine the station identifications and locations on Plate 7-1 to reflect the sampling data provided in Appendices 7-1, 7-2 and 7-6. Wherever a site has 2 different designations, both are shown with one in parentheses.

Table 7-3 presents a list of proposed surface water monitoring sites. Based on the two years of surface water sampling at Locations L-13-S, L-14-S, L-15-S, and L-18-S which characterized the drainages as Intermittent by rule with ephemeral flow or Ephemeral, which matched the description of these drainages provided in the PAP, these site will no longer be sampled.

Locations of all monitoring sites are shown on Plate 7-4 , "Water Monitoring Location Map".

Proposed monitoring methods, parameters and frequencies are described in Table 7-3, "Water Monitoring Stations", Table 7-4, "Surface Water Monitoring Parameters", and Table 7-5 "Ground Water Monitoring Parameters".

In any active quarter, a minimum of three unsuccessful attempts will be made by using either 4 wheel drive vehicles or ATV's to access all water monitoring sites prior to reporting any site as "No Access". However, safety and common sense will prevail while making these attempts.

Monitoring reports will be submitted to the Division at least every 3 months, within 30 days following the end of each quarter.

731.221 Surface-Water Monitoring Plan The proposed surface-water monitoring plan is detailed in Section 731.220. This plan is based on PHC determination and analysis of all baseline hydrologic, geologic and other information in this permit application. The plan provides for monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance as set forth in 751 (see Table 7-4).

731.222 Surface-Water Monitoring Parameters The surface-water monitoring parameters are shown in Table 7-4. Water monitoring locations and sample frequencies are described in Table 7-3 and on Plate 7-4 .

The plan will provide data to show impacts to potentially affected springs, seeps, impoundments and drainages within and adjacent to the permit area, by comparison with relevant baseline data and with applicable effluent limitations.

731.222.1 Non-point Source Locations The parameter list in Table 7-4 provides monitoring for all parameters required by this section. The monitoring locations and frequencies described in Table 7-3 show that all significant springs, seeps, impoundments and drainages that could potentially be impacted by the mining and reclamation operations will be monitored on a regular basis.

731.222.2 Point-source Discharges Point-source discharge monitoring will be conducted in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the Utah Division of Environmental Health for Utah Pollutant Discharge Elimination

System (U.P.D.E.S.) permits. A U.P.D.E.S. discharge permit application has been submitted to the Division of Environmental Health for the proposed sediment pond and mine water for the Lila Canyon operation. Existing U.P.D.E.S. permit applications for the Lila Canyon Mine are provided in Appendix 7-5.

731.223 Reporting As indicated in Section 731.220, surface-water monitoring data will be submitted at least every 3 months during active monitoring for each monitoring location. When analysis of any surface water sample indicates non-compliance with the permit conditions, the company will promptly notify the Division and immediately take actions to identify the source of the problem, correct the problem and, if necessary, to provide warning to any person whose health and safety is in imminent danger due to the non-compliance.

731.224 Duration Surface-water monitoring will continue through mining and reclamation until bond release. Locations, parameters and/or sampling frequency (other than U.P.D.E.S. discharge points) may be modified by the Division if:

731.224.1 "The operator has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses"; or,

731.224.2 "Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under 731.221.

Therefore, UEI requests that the surface water monitoring plan be modified as follows:

As baseline for the surface water conditions have been described by the monitoring to date for the Lila Canyon permit area, UEI would like to discontinue monitoring of the surface water sites away from the surface facilities until just before second mining takes place within the mine permit

area. Two years before second mining is anticipated to start, then monitoring will commence again and the data compared with the baseline.

The existing baseline data shows the current surface water conditions for the permit area. No significant surface water impacts have been identified from current first mining activities. Continuous additional monitoring will only unnecessarily duplicate costs for data that has already been collected.

As the two years of ephemeral wash characterization data have been collected and the data reflects the flow conditions as described in the surface water hydrology sections of the PAP, the sites CG-1 through CG-7 will be suspended and discontinued. Also, the upper rain gauge RS-2 will be suspended. These sites were installed and data were collected, as part of a Board Order settlement, to demonstrate that the upper drainages were ephemeral in nature and that the flow characteristics had been correctly described in the PAP.

Additionally, the sampling frequency for sites L-S-1, L-S-2, and L-S-3 be changed from monthly to quarterly. As the baseline for these sites have been determined and there is no impact from the mining, reduction of the sampling frequency is justified. These sites will be sampled quarterly and flows will be recorded when they occur.

Also, it is desired that the monitoring during the first quarter not be continued. During the data collection period, there have been few first quarter periods when it was feasible to gain access to the upper elevations of the Book Cliffs and when access was available to the top during these periods, the snow cover in the canyons prevented access to the sampling locations and the sites which were accessed were either dry or frozen. Therefore, it would be realistic to recognize the existing field conditions and adjust the monitoring plan accordingly.

The monitoring plan would be modified to require monitoring during the 2nd, 3rd, and 4th quarters.

731.225 Monitoring Equipment Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of surface water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed.

731.300 Acid- and Toxic-Forming Materials Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water will be avoided by implementation of a Spill Prevention Control and Countermeasure (SPCC) Plan and by the following:

731.311 Identification/Burial of Acid- or Toxic-Forming Materials

Potentially acid- or toxic-forming materials will be identified by use of Material Safety Data Sheets (MSDS), or by direct sampling and analysis in the case of underground development waste.

Any material which exhibits acid- or toxic-forming characteristics will be properly stored, protected from runoff, removed to an approved disposal site or buried on site beneath a minimum of 4' of non-acid, non-toxic material.

731.312 Storage of Acid- or Toxic-Forming Materials Storage of potentially acid- or toxic-forming materials, such as fuel, oils, solvents and non-coal waste will be in a controlled manner, designed to contain spillage and prevent runoff to surface or ground water resources.

All oils and solvents will be stored in proper containers within enclosed structures. Fuels will be stored in appropriate tanks, enclosed within concrete or earthen bermed areas designed to contain any spillage.

Non-coal waste (garbage) will be stored in a designated location, in dumpsters, and removed to an approved landfill (East Carbon Development Contractors - ECDC) on a regular, as-needed basis.

Unused or obsolete equipment or supplies will be stored in a designated area. Drainage from the storage area will be directed to the sediment pond as shown on the Sediment Control Map, Plate 7-5.

Underground development waste (if any) will also be stored in a designated area. Such waste will be tested for acid- or toxic-forming potential, and if found to be acid- or toxic-forming, the waste site will be protected from surface runoff by the use of earthen berms.

731.320 Storage, Burial, Treatment All storage, burial and treatment practices will be as described in this permit, and consistent with applicable material handling and disposal provisions of the R645-Rules.

731.400 Transfer of Wells There are presently three piezometers on this permit. When these piezometers are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations (see Section 631.200). The Horse Canyon Well has been donated to the College of Eastern Utah as part of the Post Mine Land Use Change.

731.500 Discharges The only proposed discharges from this operation will be from the sediment pond and/or underground mine water. Each of these potential discharges would be monitored and controlled within requirements of approved U.P.D.E.S. Discharge Permits.

731.510 Discharges into an Underground Mine There are no plans to discharge any water into an underground mine. This section is not applicable.

731.512 Types of Discharge The only planned discharges from this site are water, in the form of sediment pond discharge or underground mine water discharge.

731.512.1 Water See Section 731.512.

731.512.2 Coal Processing Waste N/A - There are no plans to process coal or discharge coal processing waste from this site.

731.512.3 Fly Ash from a Coal-Fired Facility N/A - There are no plans for a coal-fired facility at this time.

731.512.4 Sludge from Acid-Mine-Drainage Treatment

N/A There are no plans for an acid-mine-drainage treatment facility at this time.

Table 7-3
Lila Canyon Mine
Water Monitoring Stations

Station	Location	Type	Frequency	Remarks
L-1-S	Lila Canyon	Int. Stream	Quarterly	At mine Site
L-2-S	Rt. Fork Lila (above mine)	Ephemeral Stream	Quarterly	RF Above Mine Site
L-3-S	Lila Canyon (below mine)	Int. Stream	Quarterly	RF Below Mine Site
L-4-S	Sediment Pond	Discharge	Monthly or as occurs	Per UPDES Permit
L-5-G	Mine Water	Discharge	Monthly or as occurs	Per UPDES Permit
L-6-G	Lila Canyon	Spring	Sampling Permanently Suspended 1Qtr 2003	Replaced by L-11-G Water Right 91-617
L-7-G	Little Park	Spring	Sampling Temporarily Suspended 3Qtr 2011	Cottonwood Spring Sample Site 9 Water Right 91-2521
L-8-G	Little Park	Spring	Sampling Temporarily Suspended 3Qtr 2011	Unnamed Spring Sample Site 10 Water Right 91-2538
L-9-G	Little Park	Spring	Sampling Temporarily Suspended 3Qtr 2011	Pine Spring Sample Site 16Z Water Right 91-2539
L-10-G	Williams Draw	Spring	Sampling Permanently Suspended 1Qtr 2003	Replaced by L-12-G Water Right 91-809

Table 7-3
Lila Canyon Mine
Water Monitoring Stations

Station	Location	Type	Frequency	Remarks
L-11-G	Lila Canyon	Spring	Sampling Temporarily Suspended 3Qtr 2011	Mont/Leslie Spring Replaces L-6-G Water Right 91-618
L-12-G	Section 25 Spring	Spring	Sampling Temporarily Suspended 3Qtr 2011	Replaces L-10-G
L-13-S	Little Park Wash	Dry Wash	Sampling Temporarily Suspended 3Qtr 2011	At Road Crossing
L-14-S	Section 25 Wash	Dry Wash	Sampling Temporarily Suspended 3Qtr 2011	At Road Crossing
L-15-S	Williams Draw Wash	Dry Wash	Sampling Permanently Suspended 1Qtr of 2003	At Road Crossing
L-16-G	Stinky Spring Wash	Seep	Quarterly	Top of Mancos
L-17-G	Stinky Spring Wash	Seep	Quarterly	Top of Mancos
L-18-S	Stinky Springs Wash	Dry Wash	Sampling Temporarily Suspended 3Qtr 2011	Adjacent to Access Road
L-19-S	Little Park Wash	Dry Wash	Sampling Temporarily Suspended 3Qtr 2011	At Permit Boundary

Table 7-3 Lila Canyon Mine Water Monitoring Stations				
Station	Location	Type	Frequency	Remarks
L-20-G	Quaker Spring	Seep	Sampling Commenced 1Qtr 2011	North of Permit Boundary
IPA-1	Little Park	Borehole	Sampling Temporarily Suspended 3Qtr 2011	Water Level Only
IPA-2	Little Park	Borehole	Sampling Temporarily Suspended 3Qtr 2011	Water Level Only
IPA-3	Little Park	Borehole	Sampling Temporarily Suspended 3Qtr 2011	Water Level Only

NOTE: Sites L-13-S, L-14-S, L-15-S, and L-18-S were suspended following completion of wash characterization study. Other sites temporarily suspended until two year prior to second mining.

Table 7-4
Lila Canyon Mine
Surface Water Monitoring Parameters
Operational and Post-Mining

Field Measurements	Reported As
Water Level or Flow	Depth, Flow
pH	Standard Units
Specific Conductivity (ohms/cm)	umhos/cm @ 25° C
Temperature	° C
Dissolved Oxygen	mg/l
Laboratory Measurements	Reported As
Total Dissolved Solids	mg/l
Total Settleable Solids	(UPDES)
Total Suspended Solids	mg/l
Total Hardness (CaCO ₃)	mg/l
Total Alkalinity	mg/l
Carbonate (CO ₃ ⁻²)	mg/l
Bicarbonate (HC) ₃ ⁻¹)	mg/l
Calcium (Ca) (Dissolved)	mg/l
Chloride (Cl ⁻)	mg/l
Iron (Fe) (Dissolved)	mg/l
Iron (Fe) (Total)	mg/l
Magnesium (Mg) (Dissolved)	mg/l
Manganese (Mn) (Dissolved)	mg/l
Manganese (Mn) (Total)	mg/l
Potassium (K) (Dissolved)	mg/l
Sodium (Na) (Dissolved)	mg/l
Sulfate (SO ₄ ⁻²)	mg/l
Oil and Grease (As required)	mg/l
Cations	meq/l
Anions	meq/l

Table 7-5
Lila Canyon Mine
Ground Water Monitoring Parameters
Operational and Post-Mining

Field Measurements	Reported As
Water Level or Flow	Depth, Flow
pH	Standard Units
Specific Conductivity	umhos/cm @ 25° C
Temperature	° C
Laboratory Measurements	Reported As
Total Dissolved Solids	mg/l
Total Hardness (CaCO ₃)	mg/l
Total Alkalinity	mg/l
Carbonate (CO ₃ ⁻²)	mg/l
Bicarbonate (HC ₃ ⁻¹)	mg/l
Calcium (Ca) (Dissolved)	mg/l
Chloride (Cl ⁻)	mg/l
Iron (Fe) (Dissolved)	mg/l
Iron (Fe) (Total)	mg/l
Magnesium (Mg) (Dissolved)	mg/l
Manganese (Mn) (Dissolved)	mg/l
Manganese (Mn) (Total)	mg/l
Potassium (K) (Dissolved)	mg/l
Sodium (Na) (Dissolved)	mg/l
Sulfate (SO ₄ ⁻²)	mg/l
Oil and Grease (As required)	mg/l
Cations	meq/l
Anions	meq/l

731.512.5 Flue-gas Desulfurization Sludge N/A - There are no plans for flue-gas desulfurization at this site.

731.512.6 Inert Materials N/A - There are no plans to use or discharge inert materials used for stabilizing underground mines.

731.512.7 Any underground mine development wastes that cannot be left and permanently stored underground will be brought to the surface and stored in a controlled, designated location. Final disposal of such material will depend on its volume, physical and chemical characteristics and potential for use in reclamation. There are presently no plans to return such material underground; however, if this does become necessary in the future, complete plans will be submitted for disposal at that time.

731.513 Water from Underground Workings Based on historical data from other mines in the area, some mine water can be expected to be encountered during the mining operation. Typically, such water is stored in "sumps" or designated areas in the mine and used for mining operations or discharged to the surface. A sump is an underground storage area that is used to temporarily store water before it is used underground or pumped to the surface for discharge. The main purpose of a sump is to remove sediments. The sump will also remove oil/grease if they were to get into the water. The size of a sump can vary from a few hundred gallons to several thousand gallons. The size normally depends on the space available and the amount of water needed for mining operations.

In order to more accurately define the potential impact of the mine on ground water, underground usage discharge amounts, if they were to occur, would be documented. This information along with the surface monitoring program will provide the best information available as to the potential impact of the mine on ground water.

IPA piezometers 1-3 will still be monitored quarterly if possible. The three piezometers were monitored on December 22, 2000. The water level probe during this period was unable to reach the depth required to measure the water level of IPA-1 and IPA -3. Another attempt will be

made to enter these piezometers when the sites are accessible.

The water level of IPA-2 was very consistent with the last reading taken on April 29, 1996. This piezometer (IPA-2) is the farthest west of the three piezometers and is up dip from the other two. Any impact to ground water would be noticed very quickly at IPA-2. This information from IPA-2 along with the past baseline data on the three piezometers and the in mine water monitoring program mentioned above, would provide an accurate evaluation of potential ground water impacts.

At the present time, there are no plans to divert water from the underground workings of this operation to any other underground workings.

If it became necessary to discharge water from the mine, this water would be discharged in accordance with the UPDES permit application in Appendix 7-5. The water would be discharged into the Right Fork of Lila Canyon. Refer to Plate 7-5.

731.520 Gravity Discharges Location of the proposed portal slopes are below the western (upper) exposure of the easterly dipping coal bed. In the area immediately around the proposed portals, no water is presently issuing from the strata above or below the coal outcrop; therefore, it is assumed any water encountered in the underground mining will not be under artesian pressure or with sufficient hydrostatic head to raise it to the portal site.

The coal seam to be mined dips away from the portal site at approximately 10%. If water is encountered in the mining, it will likely be at a static level far below the exposed outcrop or rock slopes. This may result in some possible mine discharge from pumping, but not from gravity.

731.521 Portal Location The proposed access portals are below the coal outcrop, as shown on Figure 7-1, Plates 5-5 and 7-5. The ventilation breakout locations are shown on Plate 5-2. The rock slopes will slope up to the east at approximately 12% to contact the coal seam; however, the coal seam is dipping down to the east in this area. The approximate point

of contact between the rock slopes and the coal seam will be 1227' from the surface at an elevation of 6300'. Ground water levels in the mining area, based on the 3 water monitoring holes and other geologic data, appear to be nearly static at elevation 5990 in this area (see Figure 7-1).

Water level in the mine would have to raise approximately 310' to reach the rock slope/coal seam contact and result in a gravity discharge. Water monitoring results and other historical data in the area do not indicate this is likely to occur.

731.522 Surface Entries after January 21, 1981 This is not known to be an acid-producing or iron-producing coal seam; however, proposed portals are located to prevent gravity discharge from the mine (see Section 731.521).

731.600 Buffer Zones All streams within the permit area are either ephemeral or intermittent by rule with ephemeral flow. In the area of the surface facilities along the intermittent by definition Lila Wash, the Operator will install stream buffer zone signs in locations shown on Plate 5-2 and maintain the buffer zones during the operation.

731.700 Cross Sections and Maps The following is a list of cross-sections and maps provided in this section of the P.A.P.

Plate 7-1	Permit Area Hydrology Map
Plate 7-2	Disturbed Area Hydrology/Watershed
Plate 7-3	Water Rights Locations
Plate 7-4	Water Monitoring Location Map
Plate 7-5	Proposed Sediment Control Map
Plate 7-6a	Proposed Sediment Pond #1
Plate 7-6b	Proposed Sediment Pond #2
Plate 7-7	Post-Mining Hydrology

All required maps and cross-sections have been prepared by, or under the supervision of, and certified by a Registered Professional Engineer, State of Utah.

731.710 General Area Hydrology Plate 7-1.

731.720 Plate 7-2.

731.730 Water Monitoring Map Plate 7-4.

731.740 Sediment Pond Map Plates 7-6a and 7-6b.

731.750 Plate 7-6a & b.

731.760 Other Maps (See Section 731.700 for a complete list of maps provided in this section).

731.800 Water Rights and Replacement (See Section 727)

732. Sediment Control Measures

732.100 Siltation Structures The only proposed siltation structure for this site is the sediment pond. All disturbed area runoff is proposed to be directed to this pond for final treatment prior to discharge.

The sediment pond will be constructed and maintained in compliance with applicable regulations. Details of the proposed pond are discussed in the following section and in Appendix 7-4.

732.200 Sedimentation Ponds As discussed above, all disturbed area runoff is proposed to be directed to a sediment pond for final treatment prior to any discharge. The proposed sediment pond will be located at the low point of the disturbed area, as shown on Plate 7-5.

732.210 Sediment Pond Details The proposed sediment pond is considered temporary, and will be removed during final reclamation. The pond is designed in compliance with the requirements of the following sections, as required:

356.300 - The pond will be maintained until the disturbed area has been stabilized and revegetated. Removal shall not be any sooner than 2 years after the last augmented seeding;

356.400 - Upon removal, the pond area will be reclaimed and reseeded according to the reclamation plan;

513.200 - N/A - The proposed sediment pond does not meet the size or other qualifying criteria of MSHA, 30 CFR 77.216(a);

763 - Refer to this regulation addressed later in this chapter.

Design details for the sediment pond and site drainage control are addressed in Appendix 7-4 of this P.A.P.

732.220 MSHA Requirements This section does not apply since there are no plans for construction of coal processing waste dams or embankments at this site. The proposed pond does not meet the size or other qualifying criteria of MSHA, 30 CFR 77.216(a).

732.300 Diversions There is one undisturbed diversion planned for this site. This diversion consists of a bypass culvert beneath the sediment pond, which will allow undisturbed runoff to bypass the site without mixing with disturbed area runoff.

Other diversions planned consist of disturbed area ditches and culverts, as shown on Plate 7-5. Design details for all diversions are provided in Appendix 7-4.

All diversions will be constructed and maintained to comply with the requirements of R645-301-742.100 and R645-301-742.300. Details are described under those respective sections of this chapter.

732.400 Road Drainage All roads will be constructed, maintained and reconstructed to comply with R645-301-742.400. Specific information to road drainage is provided under that section of this chapter.

732.410 Alteration or Relocation of Natural Drainages There are no plans to construct roads which will require alteration or relocation of natural drainageways, other than by providing

culverted crossings over ephemeral drainages. There are no plans to alter or relocate any intermittent or perennial drainages in conjunction with road construction.

Road construction and design details are provided in Chapter 5 of this P.A.P. Road drainage and culvert design details are provided in Appendix 7-4.

732.420 Culverts Culvert details are provided in Appendix 7-4. All undisturbed culvert inlets will be provided with headwall protection, consisting of inlet sections, rock or concrete.

733. Impoundments The only water impoundment proposed for this site is the sediment pond. Design details for the pond are provided in Appendix 7-4 and on Plates 7-6a & b.

733.100 General Plans The general plan for this site is to drain runoff from the disturbed area into a single sedimentation pond for treatment prior to discharge. Site drainage and design details are described in Appendix 7-4. The general plan includes the following, at a minimum:

733.110 Certification The sediment control plan and proposed sediment pond designs have been prepared and certified by a Registered Professional Engineer, State of Utah.

733.120 Maps and Cross Sections Sediment pond locations, design plans and cross sections are provided on Plates 7-5 and 7-6a & b, respectively.

733.130 Narrative A complete description of the proposed sediment pond along with volumes and design/construction details is provided in Appendix 7-4.

733.140 Survey The proposed sediment pond is not located within a potential subsidence area from past underground mining operations.

733.150 Hydrologic and Geologic Information Relevant hydrologic and geologic information for the sediment pond is provided in Appendix 7-4.

733.160 Certification Statement All proposed sediment pond structures are provided with this submittal. The structure will be constructed prior to construction of the mine site area, but not before receiving Division approval.

733.200 Permanent and Temporary Impoundments As indicated earlier, the proposed sediment pond is classed as temporary.

733.210 Design Requirements The proposed sediment pond is temporary; therefore, the pond is not designed to meet requirements of MSHA 30 CFR 77.216.

The proposed pond is not located where failure would expect to cause loss of life or serious property damage. As shown in Appendix 7-4, the proposed pond embankment will have a minimum of 3H : 1V on the inside slope and 2H : 1V on the outside. These slopes, along with the 95% compaction requirement, will ensure a static safety factor in excess of 1.3, as required.

733.220 Permanent Impoundment Section 733.220 is not applicable since the impoundment will be temporary.

733.230 Temporary Impoundment The proposed sediment pond is a temporary impoundment, and will be removed when reclamation sediment control and revegetation criteria are met, in accordance with Phase II Bond Release criteria.

733.240 Inspections/Potential Hazards As indicated under Section 515.200, if any examination or inspection shows a potential hazard exists, the person who examined the impoundment will promptly notify the Division of the finding and emergency procedures formatted for public protection and remedial action.

734. Discharge Structure All discharges from sedimentation ponds, diversions and culverts will be protected from erosion by the use of adequately sized rip-rap, concrete or other approved protection. Details for outlet protection for all drainage control structures are provided in appendix 7-4. All discharge structures have been designed according to standard engineering design procedures.

735. Disposal of Excess Spoil No excess spoil production is anticipated.

736. Coal Mine Waste Any areas designated for the disposal of coal mine waste will be constructed and maintained to comply with R645-301-746. Details are described under that section.

737. Noncoal Mine Waste Storage and final disposal of noncoal mine waste are described under section 747.

738. Temporary Casing and Sealing of Wells There are no wells proposed to be used to monitor ground water conditions associated with this permit or operation. The three Piezometers will be reclaimed according to the requirements of the Divisions's Performance Standards.

740. Design Criteria and Plans Design criteria and plans for this permit are detailed in Appendix 7-4. The following section will describe the general drainage and sediment control plan.

741. General Requirements The proposed operation is an underground mine with a relatively small surface disturbance for transportation, support and coal handling facilities. The proposed surface facilities will comprise a disturbed perimeter of approximately 42.6 acres. Access roads and utility lines will consist of approximately 10 acres of additional disturbance along a BLM Right-of-Way designated as a "Transportation Corridor".

The majority of undisturbed runoff from areas above the proposed mine site will be diverted beneath the site via an undisturbed diversion culvert. Runoff from the disturbed mine site area will be directed to a sediment pond, designed to contain and treat the runoff from a 10 year - 24 hour precipitation event for the contributing watershed. Disturbed area runoff will be directed to the sediment pond via a combination of properly sized ditches and culverts. The general drainage control plan for the mine site is shown on Plate 7-5. The complete Drainage Design and Control Plan is provided in Appendix 7-4 of this P.A.P.

742. Sediment Control Measures See Appendix 7-4 for Sediment Control Measure details.

742.100 General Requirements

742.110 Designed/Constructed/Maintained Appropriate sediment control measures will be designed, constructed and maintained using the best technology currently available to:

742.111 "Prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area;"

This will be accomplished by the construction of undisturbed diversions to allow most undisturbed runoff to by-pass the site and by routing all disturbed runoff to sediment ponds for treatment prior to discharge.

742.112 "Meet the effluent limitations under R645-301-751;"

Any discharge from the sediment ponds will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434.

742.113 "Minimize erosion to the extent possible:" This will be accomplished by proper routing of drainage, and by the use of energy dissipators and/or erosion protection at all sediment pond, ditch and culvert outlets and in ditches where erosive velocities are expected.

742.120 Sediment Control Measure Sediment control measures within and adjacent to the disturbed areas are detailed in Appendix 7-4. These measures include, but are not limited to:

742.121 As discussed in Appendix 7-4, runoff from the disturbed area will be captured in sediment ponds and/or treated as necessary to meet effluent limitations prior to discharge.

742.122 As discussed in Appendix 7-4, the majority of undisturbed drainage from above the mine site will be diverted via designed undisturbed diversions.

742.123 Undisturbed diversions will consist of properly designed and protected channels and/or culverts as described in Appendix 7-4.

742.124 The primary means of velocity reduction is planned to be the use of rip-rap; however, other methods such as straw dikes, check dams and/or vegetative filters may be employed during the operational or reclamation phases as determined necessary, and with Diversion approval.

742.125 There are no plans to treat runoff with chemicals. Based on extensive experience with runoff in this area, effluent requirements for discharge can normally be met by containment and settling in a sediment pond.

742.126 It is expected that water will be encountered in the underground mining; however, this water will be used for mining needs and only discharged when no further storage is available underground. Any discharge of mine water will meet applicable effluent limitations. Such water will be sampled (and treated if necessary) prior to discharge.

742.200 Siltation Structures As described in Appendix 7-4 the sediment ponds will provide for sediment removal for most of the surface facility disturbance. An alternate sediment control method of berms and silt fences will be used at the ventilation breakouts, around the topsoil stockpile area, and on the slopes below the water treatment area and portal access road. The description of this alternate sediment control method is also described in Appendix 7-4. In the case of the ventilation breakouts, this is necessary due to its remote location and rough terrain. In the case of the water treatment slope, due to topography, there is no way to direct the runoff to the sediment basins. Other sediment structures that might be used around the surface facilities are temporary sediment traps such as straw dikes and/or catch basins.

742.210 General Requirements Siltation structures will be designed, constructed and maintained in accordance with the following regulations.

742.211 Siltation structures will be constructed using the best technology currently available to prevent additional

contributions of suspended solids and sediment to streamflow outside the permit area to the extent possible. Sediment control structures and details are discussed in Appendix 7-4.

742.212 The siltation structures (i.e. sediment ponds) will be constructed prior to any coal mining and reclamation operations. Upon construction, the ponds and any other siltation structures will be certified by a qualified registered professional engineer to be constructed as designed and approved in the reclamation plan.

742.213 The sediment ponds will be designed, constructed and maintained in accordance with all applicable regulations. See 732.200, 733.200 and Appendix 7-4 for details.

742.214 Any discharge of water from underground workings to surface waters will meet applicable effluent limitations of 751. If such water is found not to meet those requirements, the water will be treated underground prior to discharge, or passed through a siltation structure prior to leaving the permit area.

742.220 Sedimentation Ponds The sedimentation ponds will meet the following criteria:

742.221.1 The ponds will be used individually;

742.221.2 The ponds are located at the lower end of the disturbed area and out of any perennial stream (See Plate 7-5);

742.221.3 The sediment ponds will be designed, constructed and maintained to:

742.221.31 The ponds are designed to contain the runoff from a 10 year - 24 hour precipitation event for the area in addition to a minimum of 2 years of sediment storage.

742.221.32 The ponds are designed to provide a minimum of 24 hour retention of the runoff from a 10 year - 24 hour precipitation event.

742.221.33 The ponds are designed to contain the runoff from a 10 year - 24 hour precipitation event plus a minimum of 2 years of sediment storage.

742.221.34 A nonclogging dewatering devices are proved as described in Appendix 7-4.

742.221.35 This will be accomplished by proper design, construction and maintenance of the ponds as described in Appendix 7-4.

742.221.36 As discussed in Appendix 7-4, sediment will be removed when the level reaches the 2 year storage level. Since the pond is oversized, this leaves adequate room for storage of the design event.

742.221.37 The sediment ponds construction ensures against excessive settlement. See "Sediment Pond Construction Requirements" in Appendix 7-4.

742.221.38 Sediment ponds will be free of sod, large roots, frozen soil, and acid- or toxic-forming coal processing waste. See "Sediment Pond Construction Requirements" in Appendix 7-4.

742.221.39 The sediment ponds will be compacted properly. See "Sediment Pond Construction Requirements" in Appendix 7-4.

742.222 Sediment Ponds Meeting MSHA Criteria The proposed ponds do not meet the size or other qualifying criteria of MSHA, 30 CFR 77.216(a). Therefore, this section is not applicable.

742.223 Sediment Ponds Not Meeting MSHA Criteria As discussed in Appendix 7-4, the ponds will be equipped with principle spillway and emergency spillway culverts each

sized to safely discharge runoff from a 25 year - 6 hour precipitation event.

742.223.1 The Principle Spillway culverts and the Emergency Spillway culverts will be corrugated, metal pipe. Each one designed to carry sustained flows.

742.223.2 N/A - See 742.223.1

742.224 N/A - See 742.223.1

742.225 N/A - No exception requested.

742.225.1 N/A

742.225.2 N/A

742.230 Other Treatment Facilities No other treatment facilities are planned for this operation. Therefore, Section 742.230 is not applicable.

742.240 Exemptions No exemptions are requested at this time; however, since this is a new proposed operation, the need for Small Area Exemptions and/or Alternate Sediment Control Areas may arise in the future.

742.300 Diversions

742.310 General Requirements

742.311 All diversions are considered temporary, and will be removed upon final reclamation.

Diversions are designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public detailed diversion designs are presented in Appendix 7-4 of this P.A.P.

742.312 See Appendix 7-4 for diversion designs.

742.313 As indicated, all diversions for the Lila Canyon Mine are temporary, and will be removed when no longer needed. Land disturbed by removal will be reclaimed in accordance with R645-301 and R645-302. Prior to diversion removal, downstream water treatment facilities will be modified or removed. See Reclamation Hydrology Section of Appendix 7-4.

742.320 Diversion of Perennial and Intermittent Steams

Section 742.320 is not applicable since there are no diversions planned for perennial or intermittent streams within the permit area.

742.330 Diversion of Miscellaneous Flows All diversions within the permit area are of miscellaneous flows.

742.331 Certain miscellaneous undisturbed flows are proposed to be diverted around the disturbed area. Other flows are diverted within the disturbed area and to the sediment ponds, as described in Appendix 7-4.

742.332 See Appendix 7-4.

742.333 All temporary diversions are designed to safely pass the peak runoff of a 10-year 6-hour event resulting in a more robust design than the required 2-year 6-hour precipitation event. See Appendix 7-4 for details.

742.400 Road Drainage

742.410 All Roads All roads are designed in accordance with requirements of 534. Drainage control for all roads is discussed in detail in Appendix 7-4. No part of any road is planned to be located in the channel of an intermittent or perennial stream. As shown on Plate 7-2, roads are located to minimize downstream sedimentation and flooding.

742.420 Primary Roads Primary road design is discussed under 534.

742.421 As described in Section 534, all primary roads are to be located, insofar as practical, on the most stable available surfaces.

742.422 There are no stream fords planned for this operation.

742.423 Drainage Control Road drainage control is discussed in Appendix 7-4.

742.423.1 Primary roads will be equipped with adequate drainage control, including ditches, culverts and relief drains. The drainage control system is designed, and will be constructed and maintained, to pass the peak runoff safely from a 10 year - 6 hour precipitation event, as described in Appendix 7-4.

742.423.2 Culvert design and installation details are described in Appendix 7-4. Inlets and outlets are protected from erosion. Undisturbed culvert inlets are to be equipped with trash racks.

742.423.3 Drainage ditch design details are provided in Appendix 7-4.

742.423.4 There are plans to alter the drainage channel on the south boundary of the disturbed area. This drainage is an ephemeral channel with no riparian habitat. A stream alteration permit will not be required for this channel. A 60 inch culvert and a sedimentation pond will be placed in this channel. Installation of this culvert and sedimentation control plans are described in Appendix 7-4. To ensure that state of the art technology is incorporated, the final reclamation plans for the sedimentation pond area will be submitted prior to commencement of final reclamation of this area.

742.423.5 Stream channel crossings will be provided by culverts designed, constructed and maintained using current, prudent engineering practice, as described in Appendix 7-4.

743. Impoundments

743.100 General Requirements All impoundments associated with this operation are considered temporary.

743.110 Not applicable there are no impoundments planned that meet the criteria of MSHA, 30 CFR 77.216 (a).

743.120 The design of impoundments have been prepared and certified by a qualified, registered professional engineer. As described in Appendix 7-4, the proposed sediment ponds will have at least 2' of freeboard above the highest flow level in the emergency spillway, which is adequate to resist overtopping by waves and by sudden increases in storage volumes.

743.130 As described in Appendix 7-4, the sediment ponds will be equipped with a culvert riser principal spillway and a culvert riser emergency overflow sized to safely pass the runoff from a 25 year - 6 hour precipitation event.

743.131 The principal spillway design is discussed below.

743.131.1 The principle spillway will be constructed of corrugated metal pipe. The emergency spillway will also be constructed of corrugated metal pipe.

744. Discharge Structures

744.100 The sediment ponds emergency spillway will be a vertical corrugated metal pipe. For Sediment Pond 1, it will flow into the UC-1 C.M.P. beneath the pond and discharge onto an engineered rip-rap apron to prevent scouring or erosion. For Sediment Pond 2, the discharge will be via C.M.P. (See Appendix 7-4).

Diversions and culvert outlets that are expected to have flow velocities in excess of 5 fps will also be equipped with erosion and velocity controls as described in Appendix 7-4.

744.200 Discharge structures have been designed and certified according to standard engineering design procedures. (See Appendix 7-4).

745. Disposal of Excess Spoil Section 745 is not applicable since there are no plans for disposal of excess spoil at the Lila Canyon operation.

746. Coal Mine Waste The area designated for coal mine waste disposal is within an existing depression area which is located beneath and around the proposed coal storage pile area as shown on Plates 5-2, 7-2 and 7-5. This disposal area will be used for disposal of the rock slope material, reject from coal processing, coal contaminated waste from the mine (i.e. roof falls, etc.) and/or sediment pond waste.

The designated waste area will be within the disturbed area and drained to the sediment pond, and will be constructed according to Division and MSHA requirements. Coal mine waste disposal is discussed in detail under Section 536 of this permit.

746.100 General Requirements

746.110 All coal mine waste will be placed in a new disposal area within the permit area as discussed in Section 536 and 746.

746.120 The area selected for coal mine waste disposal will drain to the sediment pond for final treatment to minimize adverse effects on the surface and ground water quality and quantity. (See Plates 7-2 and 7-5).

746.200 Refuse Piles. The refuse area is described under Coal Mine Waste in Section 746 and detailed in Section 536. Rock slope material will be used as fill and is referred to as refuse. No coal refuse pile is anticipated. Other than described in Section 536.

746.210 In the event a refuse pile is needed for future operations the refuse piles would be designed to meet the requirements of the above listed Division regulations as well as applicable MSHA regulations. See Section 536 for details.

746.211 The coal mine waste disposal areas will not be located in an area containing springs, seeps or water courses. As shown on Plates 5-2 and 7-5 and described in Appendix 7-4, runoff from the areas will be drained to the sediment pond.

746.212 As described in Sections 536 and 746, the coal refuse will be placed within the mine workings, rock slope material will be placed in existing depression areas. These areas are below grade and will drain to the sediment pond. Due to the location (below grade) no berms or diversion ditches are planned for the Coal Mine Waste Area. See Appendix 7-4 for hydrologic details.

746.213 Not applicable since there are no underdrains planned for this pile.

746.220 Surface Area Stabilization

746.221 The plan for revegetation of the area is discussed in Section 536.

746.222 There are no plans for any permanent impoundments on the refuse or Coal mine waste area. Small depressions may exist for a short time until regrading is completed. These depressions are normally less than one foot in depth and not left for more than 30 days.

746.300 This section is not applicable since there are no plans to construct any impounding structures of coal mine waste or to impound coal mine waste.

746.400 This section is not applicable since there are no plans to return coal processing waste to abandoned underground workings.

747. Disposal of Noncoal Waste. Disposal of non-coal mine waste is discussed under Section 528.330 of this permit.

747.100 As indicated in Section 528.330, non-coal mine waste will be stored in a controlled manner in a designated area on site. Final disposal of all noncoal mine waste, except concrete during reclamation, will be in a state-approved solid waste disposal area (E.C.D.C.).

747.200 As shown on Plates 5-2B and 7-5, the proposed noncoal mine waste storage area is in a designated site, free of springs or seeps, and drained to the sediment pond.

747.300 There are no plans to dispose of noncoal mine waste within the permit area, except concrete during reclamation. The concrete will be buried beneath a minimum of 2' of non-acid, non-toxic material, and will not degrade surface or ground water.

748. Casing and Sealing of Wells There are only three ground water piezometers on the site IPA-1, IPA-2 and IPA-3. They will be reclaimed according to the requirements of the Division's Performance Standards. If any additional wells are required in the future, requirements of this section will be met.

750. Performance Standards

751. Water Quality Discharges of water from this operation will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U. S. Environmental Protection Agency set forth in 40 CFR Part 434. See Sections 731 and 742.

752. Sediment Control Measures Sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs described under Sections 732, 742, 760 and Appendix 7-4.

752.100 Siltation Structures Siltation structures and diversions will be located, maintained, constructed and reclaimed according to plans and designs described under Sections 732, 742, 763 and Appendix 7-4.

752.200 Road Drainage Roads will be located, designed, constructed, reconstructed, used, maintained and reclaimed as described under Sections 732.400, 742.400 and 762.

752.210 Control or Prevent Erosion See Section 742.400 and Appendix 7-4.

752.220 Control or Prevent Additional Disturbance See Section 742.400 and Appendix 7-4.

752.230 Effluent Standards See Section 742.400 and Appendix 7-4.

752.240 Degradation of Ground Water Systems See Section 742.400 and Appendix 7-4.

752.250 Altering Normal Flow of Water See Section 742.400 and Appendix 7-4.

753. Impoundments and Discharge Structures Impoundments and discharge structures will be located, maintained, constructed and reclaimed as described in Sections 733, 734, 743, 745, 760 and Appendix 7-4.

754. Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste Disposal areas for excess spoil, coal mine waste and noncoal mine waste will be located, maintained, constructed and reclaimed to comply with Sections 735, 736, 745, 746, 747 and 760.

755. Casing and Sealing of Wells Not applicable since no wells are planned for this site. The three Piezometers will be reclaimed according to the requirements of the Divisions's Performance Standards.

760. Reclamation Reclamation hydrology is detailed in Appendix 7-4.

761. General Requirements Upon completion of operations, the disturbed area will be reclaimed. All drainage and sediment controls are considered temporary and will be removed when no longer required. The sediment pond will remain in place until Phase II Bond Release requirements have been met. At that time, the pond will be removed and the area will be reclaimed in accordance with the approved plan.

762. Roads All roads within the disturbed area are temporary, and will be removed and reclaimed upon completion of operations. An access road will be left in place to reach the sediment pond; however, this road will also be removed and reclaimed when the sediment pond is removed.

762.100 Upon removal of roads, culverts and diversions will also be removed and the natural drainage patterns will be restored.

762.200 Cut and fill slopes will be reshaped according to the approved reclamation plan. This reshaping will be compatible with the

postmining land use and will complement the drainage pattern of the surround terrain. Road reclamation is described in Section 550.

763. Siltation Structures. See Appendix 7-4 for details on removal of siltation structures.

763.100 Siltation Structures will be Maintained. As indicated in Section 761, the sediment pond will remain in place until the stability and vegetation requirements for Phase II Bond Release are met. This will be a minimum of 2 years after the last augmented seeding. At this time, the pond will be removed and the area reclaimed.

763.200 Structure is Removed Upon removal of the sediment pond, the area will be regraded and revegetated in accordance with the approved reclamation plan and Sections 358, 356 and 357.

764. Structure Removal A timetable for reclamation activities is provided in Section 542.100.

765. Permanent Casing and Sealing of Wells There are only three ground water piezometers on the site IPA-1, IPA-2 and IPA-3. They will be reclaimed according to the requirements of the Division's Performance Standards. If any additional wells are required in the future, requirements of this section will be met.

References

- ADOT, 2005. Storm Water Monitoring Guidance Manual for MS-4 Activities. Arizona Department of Transportation, Phoenix, AZ.
- A-NZECC, 2000. Australian Guidelines for Water Quality Monitoring and Reporting - Summary 2000. Prepared by Australian and New Zealand Environment and Conservation Council and Agricultural and Resource Management Council of Australia and New Zealand. Department of the Environment and Heritage. Canberra, Australia.
- Balsley, John K., 1980. Cretaceous wave-dominated delta systems: Book Cliffs, east-central Utah, AAPG Field Guide, 163 p.
- Croley, Thomas W. III, 1977. Hydrologic and hydraulic computations on small programmable calculators, Iowa Institute of Hydraulic Research, Univ. of Iowa, Iowa City, Iowa.
- Fischer, et.al., 1960. Cretaceous and Tertiary Formation of the Book Cliffs, Carbon and Emery Counties, Utah. U.S. Geological Survey Professional Paper 332. Washington, D.C.
- Goldman, et.al., 1986. Erosion and Sediment Control Handbook, McGraw-Hill Book Company, N.Y.
- Intermittent Power Agency, Horse Canyon Mining and Reclamation Plan, Carbon County, Utah, ACT/007/013.
- JBR Consultants Group, 1986. Field notes and maps for the spring and seep survey of the Horse Canyon area, Fall, 1985.
- Kaiser Coal Corporation, 1985. Mining and Reclamation Plan for the South Lease. Submitted to DOGM.
- Kaiser Coal Corporation, 1986. Mining and Reclamation Plan for the Sunnyside Mines. Submitted to DOGM.
- Karla Knoop, 2006. Personal communication with Thomas J. Suchoski to discuss Westridge water sampling efforts and successes and failures.

- Lines, G. C., 1985. The groundwater system and possible effects of underground coal mining in the Trail Mountain area, central Utah. U.S. Geological Survey Water-Supply Paper 2259, 32 p.
- Lines, G. C. and others, 1984. Hydrology of Area 56, Northern Great Plains and Rocky Mountain coal provinces, Utah: U.S. Geological Survey Water-Resources Investigations Open-File Report 83-38, 69 p.
- Lines, G. C. and Plantz, G. G., 1981. Hydrologic monitoring in the coal fields of central Utah, August 1978- September 1979: U.S. Geological Water-Resources Investigations Open-File Report 81-138, 56 p.
- Richard White, 2006. Personal communication with Thomas J. Suchoski regarding Smoky Hollow water sampling efforts and successes and failures.
- Shelton, L. R., 1994. Field Guide for Collection and Processing Stream-Water samples for the National Water-quality Assessment Program. U.S. Geological Survey, Open-File Report 94-455.
- Thomas, B. E. and K. L. Lindskov, 1983. Methods for Estimating Peak Discharge and Flood Boundaries of Streams in Utah. U.S. Geological Survey, Water-Resources Investigations Report 83-4129, 77p.
- United States Department of Agriculture Soil conservation Service. National Engineering Handbook Section 4 - Hydrology, 1985.
- Unites States Department of Agriculture Soil Conservation Service. Computer program for the project formulation - hydrology, technical release number 20, 1982.
- U.S. Steel, 1981. Mining and Reclamation Plan for the Geneva Mine. Submitted to DOGM.
- U.S. Steel, 1983. Response to Determination of Completeness Review. Submitted to DOGM.
- Waddell, K.M., J.E. Dodge, D.W. Darby, and S.M. Theobald. 1992. Selected Hydrologic Data, Price River Basin, Utah. U.S. Geological Survey Open-File Report 82-916. Salt Lake City, Utah.
- Waddell, K. M., Dodge, J. E., Darby, D. W., and Theobald, S. M., 1986. Hydrology of the Price River Basin, Utah, with emphasis on selected coal-field areas: U.S. Geological Survey Water-Supply Paper 2246, 51 p.

Waddell and others, 1983 (p11).

Waddell, K.M., P.K. Contrato, C.T. Sumsion, and J.R. Butler. 1981. Hydrologic Reconnaissance of the Wasatch Plateau-Book Cliffs Coal-Fields Area, Utah. U.S. Geological Survey Water-Supply Paper 2068. Washington, D.C.

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Horse Canyon Extension Lila Canyon Mine

Chapter 7 Hydrology ~~09-003~~11-006

10-009

Volume 6 of 7

731.122 Surface-Water Quantity Surface water quantity and flow rates will be protected as described in Section 731.

731.200 Water Monitoring The water monitoring program ~~was~~has been implemented ~~in~~since July, 2000. Baseline data ~~will~~has been collected (~~as possible~~) from ~~new~~both surface and groundwater monitoring sites ~~L-1-S through L-4-S~~. These sites are typically dry and no quality data has been gathered as yet. Sites L-6-G through L-10-G have been monitored for baseline in 1993, 1994, and 1995. These sites, along with IPA-1, IPA-2 and IPA-3, were monitored in December 2000 to determine if they were still viable and to establish a. These sites established the current baseline that will be continuous with operational monitoring data set that has been approved by the Division as representing the current surface and groundwater conditions.

Preceding each five year permit renewal, ground (springs) and surface waters will be sampled for baseline parameters, same as listed in Tables 7-4 and 7-5. ~~Analysis on baseline~~Sampling of ground and surface waters will be conducted according to the operational monitoring plan, even if the monitoring has been temporarily suspended. It has been determined that ~~minimal~~minimal monitoring is required based on ~~minimal~~the anticipated impacts and no appropriated surface water use ~~down stream~~downstream.

731.210 Ground-Water Monitoring The ~~proposed~~ground-water monitoring plan is based on results of the Baseline Study and PHC determination. Based on results of these studies, the only ground water expected to be affected in the permit area is that which has been identified as springs or seeps; and that which may be expected from perched aquifers encountered by the ~~proposed~~planned mining. Since no portals are presently discharging on; or adjacent to; the permit area; and since current mining has not ~~started~~encountered water, no underground water is presently available for sampling; Therefore, selected springs are ~~proposed for sampling~~sampled under the Ground Water Monitoring Plan.

If ground water is encountered in ~~the~~future mining, of a quantity which requires discharge, the water will be monitored in accordance with requirements of this section and a monitoring plan will be proposed at that time.

731.122 Surface-Water Quantity Surface water quantity and flow rates will be protected as described in Section 731.

731.200 Water Monitoring The water monitoring program ~~was~~has been implemented ~~in~~since July, 2000. Baseline data ~~will~~has been collected ~~(as possible)~~ from ~~new~~both surface and groundwater monitoring sites ~~L-1-S through L-4-S~~. These sites are typically dry and no quality data has been gathered as yet. Sites L-6-G through L-10-G have been monitored for baseline in 1993, 1994, and 1995. These sites, along with IPA-1, IPA-2 and IPA-3, were monitored in December 2000 to determine if they were still viable and to establish a. These sites established the current baseline that will be continuous with operational monitoring data set that has been approved by the Division as representing the current surface and groundwater conditions.

Preceding each five year permit renewal, ground (springs) and surface waters will be sampled for baseline parameters, same as listed in Tables 7-4 and 7-5. ~~Analysis on baseline~~Sampling of ground and surface waters will be conducted according to the operational monitoring plan, even if the monitoring has been temporarily suspended. It has been determined that ~~minimal~~the anticipated monitoring is required based on ~~minimal~~the anticipated impacts and no appropriated surface water use ~~down stream~~downstream.

731.210 Ground-Water Monitoring The ~~proposed~~ ground-water monitoring plan is based on results of the Baseline Study and PHC determination. Based on results of these studies, the only ground water expected to be affected in the permit area is that which has been identified as springs or seeps; and that which may be expected from perched aquifers encountered by the ~~proposed~~planned mining. Since no portals are presently discharging on, or adjacent to, the permit area, and since current mining has not ~~started~~encountered water, no underground water is presently available for sampling. Therefore, selected springs are ~~proposed for sampling~~sampled under the Ground Water Monitoring Plan.

If ground water is encountered in ~~the~~ future mining, of a quantity which requires discharge, the water will be monitored in accordance with requirements of this section and a monitoring plan will be proposed at that time.

For purposes of the water monitoring program, springs and seeps are considered ground water and will be monitored as such.

731.211 Ground-Water Monitoring Plan Based on information in the PHC determination (Appendix 7-3), and as indicated above, the only ground water resources on or adjacent to the permit area that can be monitored at this time; are springs and seeps. See Appendix 7-6 for a detailed description of the water monitoring locations.

There are a total of 11 ground water monitoring sites proposed for this property: (Ssee Table 7-3). Station L-5-G is the potential mine discharge point, and will be monitored at least monthly, or as discharge occurs, in accordance with U.P.D.E.S. Permit requirements. (Ssee Table 7-4).

Stations ~~L-5-G~~, L-7-G, L-8-G,

L-9-G, L-11-G, and L-12-G are significant springs or seeps located over the area of proposed mining. These springs will be monitored on a quarterly basis for parameters listed in Table 7-5.

Station L-6-G (~~Table 7-3~~) is in the vicinity of 2two listed water right springs, Mont Spring and Leslie Spring. These springs are within the same small drainage, and may in fact be the same spring. Close examination of spring/seep and baseline monitoring stations show only one site in this drainage with any consistent flows - site H-18; therefore, this site was originally chosen to monitor the Mont and Leslie Springs area. However in recent years L-6-G has been dry and a new wet area upstream of L-6-G, Location L-11-G, has been added to replace site L-6-G. Sampling at L-6-G ~~will be~~was suspended as of the First Quarter of 2003.

Monitoring site L-7-G is intended to monitor a listed site known as Cottonwood Spring. Once again, a close examination of water rights information along with spring/seep and baseline monitoring has shown only one site in this area with any consistency - site #9; therefore, this is the site chosen for monitoring of Cottonwood Spring.

L-8-G is an unnamed spring that matches Earthfax sample site 10.

L-9-G is known as Pine Spring. There are two locations that are identified as Pine Spring. These are water rights 91-2517 and 91-2539, which are part of the same water right filing. In the spring and seep inventories there has never been any flow identified in the area of 91-2517 as the site is located off of the stream channel. It is assumed that the filing for 91-2517 is a duplicate but the location is wrong. There have been numerous seep/spring notations in the local area, but the only consistent flowing site is 91-2539; this is the site that will be monitored for Pine Spring. (In a recent archeological study, the location of the ~~sightsite~~ that has been monitored as L-9-G was determined using GPS coordinates. The location for this site was determined to be different than what was plotted on the Plates 7-1, 7-1A, and 7-3. Based on this new data, the location of the spring has been updated.)

L-10-G is also an unnamed spring that matches Earthfax sample site 14. Since this site is located over 1 mile south of the permit area, it has been replaced with L-12-G which is a more appropriate site to monitor. Monitoring of site L-10-G ~~will be~~was suspended as of the First Quarter of 2003.

L-11-G is located in the bottom of the upper reaches of Lila Canyon. This is in the same drainage as the Mont and Leslie Springs water right locations. In recent years L-6-G (H-18) has been dry. However, there has been some minimum flow observed approximately one hundred yards above L-6-G where L-11-G was established.

L-12-G is an unnamed spring which had been developed but is now abandoned. ~~The seep/spring inventory data is shown in Appendix 7-1 and locations are shown on Plate 7-1. Proposed water monitoring sites are shown on Plate 7-4.~~

L-13-S, L-14-S, L-15-S, and L-158-S are sites being monitored to assist in characterization of the various drainages.

L-16-G and L-17-G are seeps being monitored in Stinky Spring Canyon. These sites were not identified during

baseline surveys and are believed to exist intermittently and are not always evident. These two seeps appear to be an important source of water for Bighorn sheep specifically in the early spring.

L-20-G is a seep located north of the permit boundary along a tributary to Little Park Wash. It was identified in the original spring and seep survey and will now be monitored.

It should be noted that data has been gathered on the various seeps/springs as part of the original baseline inventory for the South Lease by I.P.A. The data was gathered over the years 1993, 1994 and 1995 and was stopped. In the second quarter of 2001 water monitoring continued.

The seep/spring inventory data is shown in Appendix 7-1 and locations are shown on Plate 7-1. Proposed water monitoring sites are shown on Plate 7-4.

IPA-1, 2-2 and 3-3 are groundwater piezometers in the Little Park Wash area. These holes will be checked quarterly for water depth only. Monitoring of these sites will continue until the mining or subsidence renders them unusable.

At a minimum, total dissolved solids or specific conductance corrected to 25 degrees C, pH, total iron, total manganese and water levels will be monitored, on all points except IPA-1, 2-2 and 3-3.

731.212 Monitoring Reports ~~Ground-water~~During periods of active monitoring, ground water will be monitored and data will be submitted at least every three months for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the approved reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator will promptly notify the Division and immediately take the actions provided for in 145 and 731.

731.213 Waiver of Monitoring N/A - No waiver is requested.

731.214 Ground-Water Monitoring Duration Ground-water monitoring will continue through mining and reclamation until bond release. ~~If the ground water is a discharge strictly from the mining operations, monitoring will continue, or until the ground water source is no longer accessible. Other monitoring will continue until~~

The Division may approved modifications to the monitoring plan if, based on the monitoring data, it finds:

731.214.1 "The coal mining and reclamation operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses"; or,

731.214.2 until "Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under R645-301-731.211."

Therefore, UEI requests that the ground water monitoring plan be modified as follows:

One spring to the north of the northern edge of the permit boundary named Quaker Spring, will be monitored for two years to develop a baseline data set. It will be designated as L-20-G. Following the baseline data collection its monitoring will follow the operational monitoring schedule for the upper springs.

As baseline for the ground water conditions has been described by the monitoring to date for the Lila Canyon permit area, UEI would like to discontinue monitoring of the monitoring well water levels until mining intercepts the projected regional piezometric surface, as shown on Plate 7-1, and the springs and seeps until just before second mining takes place within the mine permit area. If mining encounters the regional piezometric surface, then water level monitoring will be resumed. Two years before second mining is anticipated to start, then monitoring of the wells

and springs and seeps will resume and the data compared with the baseline.

UEI recognizes the Division's concerns for springs, L-G-16 and L-G-17, located at the top of the Mancos Shale, below the escarpment. While concerns of the use of these springs for wildlife have been suggested, UEI does not believe that the wildlife are using these waters. The TDS values have been excessive which are believed to limit or preclude the use of this water by wildlife. At the Division's request, these sampling sites will continue to be monitored, while additional evaluation of wildlife use is made.

The existing baseline data shows the current ground water conditions for the permit area. No significant groundwater impacts have been identified from current first mining activities. Continuous additional monitoring will only unnecessarily duplicate costs for data that has already been collected.

Also, it is desired that the monitoring during the first quarter not be continued. During the data collection period, there have been few first quarter periods when it was feasible to gain access to the upper elevations of the Book Cliffs and when access was available to the top during these periods, the snow cover in the canyons prevented access to the spring locations and the springs which were accessed were frozen. Therefore, it would be realistic to recognize the existing field conditions and adjust the monitoring plan accordingly.

The monitoring plan would be modified to require monitoring during the spring, summer and fall quarters.

731.215 Monitoring Equipment equipment, structures and other devices used in conjunction with monitoring the quality of ground water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator ~~and will be removed by the operator~~ when no longer needed.

731.220 Surface Water Monitoring Surface water monitoring will be conducted in accordance with the plan described in this section.

Based on results of the PHC determination, base-line study and other available information, numerous small springs and seeps exist within, and adjacent to, the permit area. In addition, ephemeral drainages in the area flow in response to snow melt and precipitation events. The proposed ~~surface-water~~surface water monitoring program will monitor the significant surface water sources, including drainages above and below the disturbed mine site area, and all point-source discharges (i.e. sediment pond). Seeps, springs and potential mine water discharge will be monitored in accordance with the Ground Water Monitoring Plan in the previous section.

It should be noted that field sheets in Appendix 7-2 refer to a point HC-2, while Bar Graphs and Spreadsheets refer to a station B-1. It has been determined that these are the same point. The site is designated B-1 on Plate 7-1, with a red HC-2 in parenthesis. The electronic data inventory (EDI) also shows both B-1 and HC-2 designations for this site.

Another HC-2 site is listed in the seep/spring inventories in Appendix 7-6 and in the baseline data in Appendix 7-1. This station is also occasionally referred to as H-2 in the seep/spring inventories (Appendix 7-6). It has been determined that the H-2 and HC-2 sites referred to in these ~~2~~two appendices are the same station. The station location is shown on Plate 7-1, where it is designated H-2 with a green (HC-2) in parentheses.

There is one other station with confusing designations in the data from Appendix 7-2 and 7-6 - station HCSW-1. This station has 3 different designations in the data - HCSW-1, HSW-1, and HC-1. The point is shown as HC-1 on Plates 7-1 and 7-4; however, a note has been added to Plate 7-1 to show the station is also called (HCSW-1), to eliminate confusion. It should also be noted that there is a seep/spring site designated as H-1 on Plate 7-1. This is not to be confused with any of the above listed HC, HSW or HCSW sites.

These are the only known duplication or wrong designation of sample site numbers. It appears that different samplers or companies conducting seep/spring inventories occasionally used different designations for the same sites - the main problem being the use of H-n# or HC-n# for the same location, in some instances. Every effort has been made to refine the station identifications and locations on Plate 7-1 to reflect the sampling data provided in

Appendices 7-1, 7-2 and 7-6. Wherever a site has 2 different designations, both are shown with one in parentheses.

The following is Table 7-3 presents a list of proposed surface water monitoring sites:

Station No.	Location	Type
L-1-S	Lila Canyon	Intermittent by rule with ephemeral flow
L-2-S	Rt. Fork Lila (above mine)	Ephemeral Stream
L-3-S	Lila Canyon Below Mine	Intermittent by rule with ephemeral flow
L-4-S	Sediment Pond Discharge	UPDES
L-5-G	Mine Water Discharge	UPDES (Groundwater r)
L-6-G (suspended)	Sampling Suspended 1Qtr 2003	Spring
L-7-G	Cottonwood Spring	Spring
L-8-G	Unnamed Spring	Spring
L-9-G	Pine Spring	Spring
L-10-G (suspended)	Sampling Suspended 1Qtr 2003	Spring
L-11-G	Lila Canyon Wash	Spring
L-12-G	Section 25 Wash	Spring
L-13-S	Little Park Wash	Intermittent by rule with ephemeral flow
L-14-S	Section 25 Wash	Intermittent by rule with ephemeral flow
L-15-S (suspended)	Sampling Suspended 1Qtr 2003	Intermittent by rule with ephemeral flow
L-16-G	Stinky Spring Wash	Seep
L-17-G	Stinky Spring Wash	Seep
L-18-S	Stinky Spring Wash	Intermittent by rule with

		ephemeral flow
IPA-1	Little Park Wash	Borehole
IPA-2	Little Park Wash	Borehole
IPA-3	Little Park Wash	Borehole

Sampling. Based on the two years of surface water sampling at Locations L-13-S, L-14-S, L-15-S, and L-18-S will no longer be required once the washes have been which characterized the drainages as Intermittent by rule with ephemeral flow or Ephemeral, which matched the description of these drainages provided in the PAP, these site will no longer be sampled.—

Locations of all monitoring sites are shown on Plate 7-4 , “Water Monitoring Location Map”.

Proposed monitoring methods, parameters and frequencies are described in Table 7-3, “Water Monitoring Stations”, Table 7-4, “Surface Water Monitoring Parameters”, and Table 7-5 “Ground Water Monitoring Parameters”.

In any oneactive quarter, a minimum of three unsuccessful attempts will be made by using either 4 wheel drive vehicles or ATV’s to access all water monitoring sites prior to reporting any site as “No Access”. However, safety and common sense will prevail while making these attempts.

Monitoring reports will be submitted to the Division at least every 3 months, within 30 days following the end of each quarter.

731.221 Surface-Water Monitoring Plan The proposed surface-water monitoring plan is detailed in Section 731.220. This plan is based on PHC determination and analysis of all baseline hydrologic, geologic and other information in this permit application. The plan provides for monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance as set forth in 751 (see Table 7-4).

731.222 Surface-Water Monitoring Parameters The surface-water monitoring parameters are shown in Table 7-

4. Water monitoring locations and sample frequencies are described in Table 7-3 and on Plate 7-4 .

The plan will provide data to show impacts to potentially affected springs, seeps, impoundments and drainages within and adjacent to the permit area, by comparison with relevant baseline data and with applicable effluent limitations.

731.222.1 Non-point Source Locations The parameter list in Table 7-4 provides monitoring for all parameters required by this section. The monitoring locations and frequencies described in Table 7-3 show that all significant springs, seeps, impoundments and drainages that could potentially be impacted by the mining and reclamation operations will be monitored on a regular basis.

731.222.2 Point-source Discharges Point-source discharge monitoring will be conducted in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the Utah Division of Environmental Health for Utah Pollutant Discharge Elimination System (U.P.D.E.S.) permits. A U.P.D.E.S. discharge permit application has been submitted to the Division of Environmental Health for the proposed sediment pond and mine water for the Lila Canyon operation. Existing U.P.D.E.S. permit applications for the Lila Canyon Mine are provided in Appendix 7-5.

731.223 Reporting As indicated in Section 731.220, surface-water monitoring data will be submitted at least every 3 months during active monitoring for each monitoring location. When analysis of any surface water sample indicates non-compliance with the permit conditions, the company will promptly notify the Division and immediately take actions to identify the source of the problem, correct the problem and, if necessary, to provide warning to any person whose health and safety is in imminent danger due to the non-compliance.

731.224 Duration Surface-water monitoring will continue through mining and reclamation until bond release. Locations, parameters and/or sampling frequency (other

than U.P.D.E.S. discharge points) may be modified by the Division if:

731.224.1 "The operator has minimized disturbance to the hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses"; or,

731.224.2 "Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under 731.221.

Therefore, UEI requests that the surface water monitoring plan be modified as follows:

As baseline for the surface water conditions have been described by the monitoring to date for the Lila Canyon permit area, UEI would like to discontinue monitoring of the surface water sites away from the surface facilities until just before second mining takes place within the mine permit area. Two years before second mining is anticipated to start, then monitoring will commence again and the data compared with the baseline.

The existing baseline data shows the current surface water conditions for the permit area. No significant surface water impacts have been identified from current first mining activities. Continuous additional monitoring will only unnecessarily duplicate costs for data that has already been collected.

As the two years of ephemeral wash characterization data have been collected and the data reflects the flow conditions as described in the surface water hydrology sections of the PAP, the sites CG-1 through CG-7 will be suspended and discontinued. Also, the upper rain gauge RS-2 will be suspended. These sites were installed and data were collected, as part of a Board Order settlement, to demonstrate that the upper drainages were ephemeral in nature and that the flow characteristics had been correctly described in the PAP.

Additionally, the sampling frequency for sites L-S-1, L-S-2, and L-S-3 be changed from monthly to quarterly. As the baseline for these sites have been determined and there is no impact from the mining, reduction of the sampling frequency is justified. These sites will be sampled quarterly and flows will be recorded when they occur.

Also, it is desired that the monitoring during the first quarter not be continued. During the data collection period, there have been few first quarter periods when it was feasible to gain access to the upper elevations of the Book Cliffs and when access was available to the top during these periods, the snow cover in the canyons prevented access to the sampling locations and the sites which were accessed were either dry or frozen. Therefore, it would be realistic to recognize the existing field conditions and adjust the monitoring plan accordingly.

The monitoring plan would be modified to require monitoring during the 2nd, 3rd, and 4th quarters.

731.225 Monitoring Equipment Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of surface water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed.

731.300 Acid- and Toxic-Forming Materials Drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water will be avoided by implementation of a Spill Prevention Control and Countermeasure (SPCC) Plan and by the following:

731.311 Identification/Burial of Acid- or Toxic-Forming Materials

Potentially acid- or toxic-forming materials will be identified by use of Material Safety Data Sheets (MSDS), or by direct sampling and analysis in the case of underground development waste.

Any material which exhibits acid- or toxic-forming characteristics will be properly stored, protected from runoff, removed to an approved disposal site or buried on site beneath a minimum of 4' of non-acid, non-toxic material.

731.312 Storage of Acid- or Toxic-Forming Materials Storage of potentially acid- or toxic-forming materials, such as fuel, oils, solvents and non-coal waste will be in a controlled manner, designed to contain spillage and prevent runoff to surface or ground water resources.

All oils and solvents will be stored in proper containers within enclosed structures. Fuels will be stored in appropriate tanks, enclosed within concrete or earthen bermed areas designed to contain any spillage.

Non-coal waste (garbage) will be stored in a designated location, in dumpsters, and removed to an approved landfill (East Carbon Development Contractors - ECDC) on a regular, as-needed basis.

Unused or obsolete equipment or supplies will be stored in a designated area. Drainage from the storage area will be directed to the sediment pond as shown on the Sediment Control Map, Plate 7-5.

Underground development waste (if any) will also be stored in a designated area. Such waste will be tested for acid- or toxic-forming potential, and if found to be acid- or toxic-forming, the waste site will be protected from surface runoff by the use of earthen berms.

731.320 Storage, Burial, Treatment All storage, burial and treatment practices will be as described in this permit, and consistent with applicable material handling and disposal provisions of the R645-Rules.

731.400 Transfer of Wells There are presently three piezometers on this permit. When these piezometers are no longer required, they will be sealed in a safe, environmentally sound manner in accordance with regulations (see Section 631.200). The Horse Canyon Well ~~will~~has ~~been~~en donated to the College of Eastern Utah as part of the Post Mine Land ~~Use Change~~Use Change.

731.500 Discharges The only proposed discharges from this operation will be from the sediment pond and/or underground mine water. Each of these potential discharges would be monitored and controlled within requirements of approved U.P.D.E.S. Discharge Permits.

Table 7-3
Lila Canyon Mine
Water Monitoring Stations

Station	Location	Type	Frequency	Remarks
L-1-S	Lila Canyon	Int. Stream	<u>Monthly</u> <u>Quarterly</u>	At mine Site
L-2-S	Rt. Fork Lila (above mine)	Ephemeral Stream	<u>Monthly</u> <u>Quarterly</u>	RF Above Mine Site
L-3-S	Lila Canyon (below mine)	Int. Stream	<u>Monthly</u> <u>Quarterly</u>	RF Below Mine Site
L-4-S	Sediment Pond	Discharge	Monthly or as occurs	Per UPDES Permit
L-5-G	Mine Water	Discharge	Monthly or as occurs	Per UPDES Permit
L-6-G	Lila Canyon	Spring	<u>Sampling</u> <u>Permanently</u> <u>Suspended</u> <u>1Qtr 2003</u>	Replaced by L-11-G Water Right 91-617
L-7-G	Little Park	Spring	<u>Quarterly</u> <u>Sampling</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	Cottonwood Spring Sample Site 9 Water Right 91-2521
L-8-G	Little Park	Spring	<u>Quarterly</u> <u>Sampling</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	Unnamed Spring Sample Site 10 Water Right 91-2538
L-9-G	Little Park	Spring	<u>Quarterly</u> <u>Sampling</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	Pine Spring Sample Site 16Z Water Right 91-2539

Table 7-3
Lila Canyon Mine
Water Monitoring Stations

Station	Location	Type	Frequency	Remarks
L-10-G	Williams Draw	Spring	Sampling <u>Permanently</u> <u>Suspended</u> <u>1Qtr 2003</u>	Replaced by L-12-G Water Right 91-809
L-11-G	Lila Canyon	Spring	<u>Quarterly</u> <u>Samp</u> <u>ling</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	Mont/Leslie Spring Replaces L-6-G Water Right 91-618
L-12-G	Section 25 Spring	Spring	<u>Quarterly</u> <u>Samp</u> <u>ling</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	Replaces L-10-G
L-13-S	Little Park Wash	Dry Wash	<u>Monthly</u> <u>Sampli</u> <u>ng</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	At Road Crossing
L-14-S	Section 25 Wash	Dry Wash	<u>Monthly</u> <u>Sampli</u> <u>ng</u> <u>Temporarily</u> <u>Suspended</u> <u>3Qtr 2011</u>	At Road Crossing
L-15-S	Williams Draw Wash	Dry Wash	Sampling <u>Permanently</u> <u>Suspended</u> <u>1Qtr of 2003</u>	At Road Crossing
L-16-G	Stinky Spring Wash	Seep	Quarterly	Top of Mancos
L-17-G	Stinky Spring Wash	Seep	Quarterly	Top of Mancos

Table 7-3 Lila Canyon Mine Water Monitoring Stations				
Station	Location	Type	Frequency	Remarks
L-18-S	Stinky Springs Wash	Dry Wash	Monthly Sampling <u>Temporarily Suspended 3Qtr 2011</u>	Adjacent to Access Road
L-19-S	Little Park Wash	Dry Wash	Monthly Sampling <u>Temporarily Suspended 3Qtr 2011</u>	At Permit Boundary
<u>L-20-G</u>	<u>Quaker Spring</u>	<u>Seep</u>	<u>Sampling Commenced 1Qtr 2011</u>	<u>North of Permit Boundary</u>
IPA-1	Little Park	Borehole	Quarterly Sampling <u>Temporarily Suspended 3Qtr 2011</u>	Water Level Only
IPA-2	Little Park	Borehole	Quarterly Sampling <u>Temporarily Suspended 3Qtr 2011</u>	Water Level Only
IPA-3	Little Park	Borehole	Quarterly Sampling <u>Temporarily Suspended 3Qtr 2011</u>	Water Level Only

NOTE: Sites L-13-S, L-14-S, L-15-S, and L-18-S ~~will no longer be monitored after the washes have been characterized~~were suspended following completion of wash characterization study. Other sites temporarily suspended until two year prior to second mining.